DISEASE CENTER

SAIMONELLA

EILLANCE

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For Month of February 1964

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PREFACE

Summarized in this report is information received from State and City Health Departments, university and hospital laboratories, the National Animal Disease Laboratory (USDA, ARS), Ames, lowa, and other pertinent sources, domestic and foreign. Much of the information is preliminary. It is intended primarily for the use of those with responsibility for disease control activities. Anyone desiring to quote this report should contact the original investigator for confirmation and interpretation.

Contributions to the Surveillance Report are most welcome. Please address to: Chief, Salmonella Surveillance Unit, Communicable Disease Center, Atlanta, Georgia, 30333.

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I. SUMMARY

A total of 1,442 human isolations of salmonellae were reported during February, 1964. This represents an increase of 393 isolations over those (1049) reported during February last year. Similarly, the 3043 cumulative total isolations in 1964 contrasts with 2170 reported during the same period in 1963.

This report includes three case reports of salmonella meningitis occurring in children, 2 from Hawaii and one from Utah. Prolonged gastrointestinal illness before onset of clinically apparent meningitis occurred in each case. Comment upon the significance of this observation are included. A foodborne outbreak of salmonella-like gastroenteritis is submitted from Ohio.

The Special Reports section includes a resume of the <u>Salmonella derby</u> problem, which concludes by encouraging more prompt study and reporting of new cases.

II. REPORTS OF ISOLATIONS FROM THE STATES

A. Human

During February 1,442 salmonella isolations were reported representing an average weekly total of 345 recoveries. As demonstrated in Figure 1, the February 1964 average weekly total exceeds those of January 1964, and February 1963 by 15 and 80 isolations respectively. These increases from month to month in 1964 and between comparable months in both 1963 and 1964 follow the pattern predicted in Report No. 22.

The seven serotypes most frequently recovered during February were:

No.	Serotype (TE)	Number	Per Cent Standing Last Month
1	S. typhimurium	392	eM electron was worth between 1 mollings
2	S. derby	301	20.9 osla aldi . seudrationale
3	S. infantis	74	vers 1. Links soul smolt 4 on enalty
4	S. heidelberg	69	4.8 90000 10 790003
5	S. typhi	51	fa wi 3.5 speci inglis a 2 7 am super
6	S. enteritidis	49	3.4 5
7	S. oranienburg	42	190 2.9 In leading to another than the
	Total	978	menc. many from repliles. This mone

Total salmonellae isolated (February) 1,442

Thus, the seven most common of the 55 serotypes reported accounted for over two-thirds of total isolations this month. The order of frequency of the serotypes shows no striking variation from past months. Nowever, the percentage of <u>S. derby</u> isolations continues to increase. This increase is the subject of a special report (ride infra).

The age and sex distribution of individuals reported as haboring salmonella during February is consistent with that observed in previous months.

During February, 314 (21.8 per cent) of the 1,442 individuals from whom salmonella isolations were reported had at least one other member of their family simultaneously positive for the same serotype. This months' family attack rate is comparable to those computed for antecedent months.

В. Nonhuman

There were 370 isolations reported from nonhuman sources for the month of February. This is less than the previous month when 400 were reported. In 1963 February was the highest month with 526 reported. The 44 serotypes identified were submitted from 30 states:

The seven most commonly reported serotypes for February are as follows:

A total of 1 442 towar isolations of salmonellae were repo

1	S. typhimurium	0 - 0 - 0 - 0 - 0 - 0 - 0 - 0 - 0 - 0 -	section includes	aimnst l	The Specia
1 30	S. typhimurium var. Copenhagen		galging ve		i which
2	S. derby	43	11.6	Not	listed
3	S. anatum	31	8.4		4
4	S. heidelberg	29	STATE 318.4	MATERIAL TOTAL	2
5	S. enteritidis	27	7.3	Not	listed
6	S. infantis	20	5.4		3
7	S. st. paul	17	1.642 salmonell	commode St. sc	6
I said	Total				

Total

These seven types comprise 58.2% of the total isolates reported. The greatest number of isolates were reported from 4 species of animals in order of frequency as follows: Chickens 132 (35.7%), turkeys 76 (20.5%), swine 70 (18.9%), bovine 20 (5.4%); the isolates from these species comprise 80.5% of the total number reported.

There was a significant number of S. derby (37) and S. anatum (19) isolations reported from swine in Maryland. These resulted from special studies of the U.S. Department of Agriculture on swine arriving at a slaughterhouse. This also accounts for the change in order of frequency where isolations from cattle in previous months have been greater than from swine. A number of canine isolations were reported from Alaska which accounts for a slight increase in this species over previous months.

The isolations of unusual types are frequently from zoological specimens, many from reptiles. This month S. poona was isolated from a Tasmanian devil (marsupial), and \underline{S} . stanley from monkeys.

REPORTS FROM STATES

Thus, the seven most common of the 55 serotypes reporte over two-thirds of total isolations this month. The order of tawalluents of

s: Two Unrelated Cases of Salmonella panama Meningitis Case reports: in Children. W. F. Lyons, M.D., Chief, Epidemiology Branch, Hawaii Department of Health.

Total salmonelise isolated (February) 1,442

A two-month old female developed transient diarrhea April 15, 1963 followed by a low-grade fever which persisted for one month. On May 12 the patient was first seen by a physician. Symptomatic therapy brought no improvement. On May 21 the patient was seen at a medical clinic where On May 23 the patient spiked a fever of 105° F. and convulsed. She was admitted to a 10081 hospital. Physical evamination hospital. Physical examination revealed high fever and a classical picture of meningitis.

Laboratory studies on admission revealed the following:

- (1) WBC-22,100 per cu. mm. and
- (2) Hemoglobin 10.4 gm. per cent.

Spinal fluid appearance was turbid. It contained 860 white blood cells, 99 red blood cells, 3.0 mgm. per cent sugar and 108 meg. chloride per 100 ml. Smear and stain of the spinal fluid revealed Gram-negative rods and clusters of white blood cells. Antibiotic therapy was promptly initiated. (Specific agents not reported. --Ed.) Recovery was slow. Salmonella panama was isolated from the spinal fluid obtained on admission and from a stool obtained May 25.

The patient had eight home contacts. All were interviewed and cultured in June and July 1963. None gave a history of gastroenteritis prior to April 15. Two were found to be asymptomatic excreters of \underline{S} . panama on July 9. They were the patient's 44 year old grandmother who cared for the patient prior to and during her illness, and an 18 year old uncle. Both contacts denied gastroenteritis during the preceding 6 months.

The patient's home was located in an old sugar plantation housing camp. Chickens were raised in the backyard for their eggs, meat, and for fighting. Neither the chickens nor their eggs were cultured. The source of infection in this small family outbreak was not identified.

Case 2. A 6-month old female developed "foamy" diarrhea and fever January 11, 1964. Symptoms worsened and the patient was admitted to a local hospital January 26. Therapy was symptomatic and the patient was discharged two days later. On February 1, the patient developed signs and symptoms of meningitis. Admission WBC was 25,000 and hemoblogin 10.8 grams per cent. Spinal fluid contained 146 white blood cells, 24 mgm. per cent protein and 80 mgm. per cent sugar. S. panama was isolated from the admission spinal fluid culture. Therapy included penicillin, sulfadiazine and chloramphenical until antibiotic sensitivity patterns were obtained four days later. These dictated the use of colistin sulfate which was administered 4.5 mgm/kg/day intra-muscularly. Recovery is proceeding slowly.

All family contacts are stool culture negative. No source of the infection could be identified.

B. Utah Dear Hand . U.M. See Share I bear of active

Case report: Fatal Meningitis in an Eight-Week Old Male due to Salmonella schwarzengrund. G. D. Carlyle Thompson, M.D., Director of Public Health, Utah Department of Health.

A Wyoming male infant was in good health until four weeks of age when he developed severe diarrhea. After several loose stools he became increasingly irritable and developed a right-sided seizure. He was hospitalized in Wyoming where he received supportive therapy and perhaps a corticosteroid preparation. He rapidly improved and was discharged two days later. Two weeks later he was readmitted to the same hospital because of persistent weeks later he was readmitted to the same hospital because of persistent fever (to 103° F.) and anorexia. Shortly thereafter the patient was noted to have a bulging anterior fontamelle and was transferred to a Salt Lake City Hospital.

Upon admission the patient was rigid, irritable and opisthotonic. Pulse was 160 per minute and respirations 40 per minute. Laboratory studies showed: hematocrit of 33 per cent and a white blood cell count of 13,950 per cu. mm. Spinal fluid could not be obtained. A subdural tap yielded thick purulent material which contained numerous Gram negative bacilli and white cells on stain. The patient received 800 mgm. sulfadiazine, 200 mgm. chloramphenicol and 4 million units penicillin during the next 24 hours.

On the second hospital day, mild focal seizures developed. The patient became increasingly tachypneic, vomited, aspirated, and died 48 hours after admission. Culture of material from the subdural tap grew <u>Salmonella</u> schwarzengrund.

No epidemiological data is available.

Editor's Comment: The above case reports are of interest for a variety of reasons. The first S. panama case follows a similar pattern to an outbreak of S. panama infections in infants reported in Michigan. Both infant and adult carriers of panama were found during and after the outbreak with 18 fatal cases. Salmonella meningitis is an unusual occurrence. been well studied in the past and thus little is known of its pathogenesis, course, or response to therapy. Of special interest is the occurrence of symptoms of diarrhea and/or fever for approximately one month prior to clinically apparent meningitis in each of the 3 cases reported. This interval hardly reflects delay in diagnosis of meningitis. Perhaps it is a predictable occurrence in the pathogenesis of the disease. that these 3 infants were each unable to develop resistance or immunity to the organism during one month of intestinal infection, thus predisposing to systemic dissemination of the organism. Of course, these latter are speculation, but only through compilation of case reports such as these can sufficient data be accumulated for conclusive statements to be made about this most serious complication of salmonella gastroenteritis.

For a brief review of this subject with references, see Surveillance Report No. 4, page 11.

C. Ohio

A Possible Foodborne Outbreak of Salmonellosis. Harold Decker, M.D., Chief, Division of Communicable Diseases, Ohio Department of Public Health and J. Edwin Reed, M.D., Hamilton County Health Department.

all family contacts are stool culture negative. Wo source

A foodborne outbreak was believed to have resulted from food consumed at a local restaurant on Saturday evening, October 5, 1963. While it is probable that other customers eating on this date were ill, this investigation has limited itself to two groups; a private fraternity of high school students and an adult club.

The 69 high school students ate between 5:30 and 6:00 p.m. Only 3 of the students were not ill. Their onsets (forty-nine of the students) vary from 16 hours to 58 hours after this meal. Nearly 50%, or 24 out of 49 students, had their onset between 3:00 a.m. and 10:00 a.m. Monday, October 7. The average incubation period was 36.4 hours. The illness persisted from 2 to 24 hours.

The adult club of 21 people ate between 7:30 and 8:00 p.m. Reports from 9 of the group listed Sunday, October 6, as the earliest date of onset and 2:00 p.m. Monday as the latest date of onset. The illness persisted from 16 to 72 hours.

Histories of symptoms were obtained from 23 students. The numbers and rates for their occurrence are as follows:

Symptom	Number	Rate %
Vomiting	pow solitostat al	86.9
Nausea	19	82.6
Diarrhea	15	65.2
Fever	13	56.5

Also there were three students reporting abdominal cramps, one reported dizziness, and one reported drowsiness. Histories of symptoms among 11 members of the club were similar.

Tables 1 and 2 depict the statistical analysis of foods consumed by people who were either sick or well. The difference rates for the high school students in Table 1 are not significant. It is speculated that the explanation lies in the fact that very few food items escaped the voracious appetites of the students. The rates for the club are listed in Table 2. It is felt that the attack rates for the roast beef are most significant since 90% of those eating the beef were ill with 30% ill who did not eat roast beef. None of the other foods have a combination of a high rate for people consuming the item coupled with a low rate for people not consuming the item. Also many of the other rates must be disqualified since they are not derived from a large enough base to be representative.

The restaurant is a large suburban supper club rather elegantly furnished and decorated. It is located in a newly developed shopping center. The food service is self service buffet style from steam tables and iced counters, for salads. With the exception of the salad counters, all the rood came from one serving line. By the time the outbreak was reported, all of the food from the suspect Saturday evening selection had been discarded.

The preparation of roast beef was discussed with the manager and chief cook. It was found that routinely the roast beefs were prepared the night before and that reasonable precautions were taken to assure the meat being adequately roasted throughout its thickness. The roasts were removed from the oven and allowed to cool from three to four hours before refrigeration. When ready to serve, the meat was sliced and reheated in a flat pan in juice and water.

The three to four hours cooling of the roast beef prior to refrigeration obviously offers too great an opportunity for contamination and incution. It was suggested that the roasts be cooled more quickly (not to bation. It was suggested that the promptly refrigerated until needed exceed one hour) by using fans and then promptly refrigerated until needed for serving.

Stool specimens from the four cooks were negative on culture. Stool specimens from 26 students resulted in only one positive culture which was specimens from 26 students resulted in only one positive culture which was identified as Salmonella tennessee. It was felt that this was insufficient evidence of the causative organism since there was no way of knowing what

organism was in the food. Also one positive culture from 26 specimens was not statistically significant. leising eastli and the man to one depai at se volume the

The common onset, dining place and time, and the similarity in symptoms are evidence that food consumed Saturday evening October 5, 1963 caused some form of gastroenteritis. The attack rates of the food histories in Table 2 and the method of preparing roast beef are suggestive that roast beef was the causative food item. The etiological organism would have to be consistent with a 16 to 58 hour incubation period and symptoms of nausea, vomiting, diarrhea, and fever. A salmonella infection would seem to best match the symptoms and incubation period.

Table __1 Attack Rates by Specific Dietary Item beirogor son agains Isalachde for Students debuts asad; or a . . reported drowsiness. Hetorics of symptoms among it

	PERS	ONS EAT	ING FOOD ITEM	PERSONS NOT EATING FOOD ITE				
FOOD	111	Well	Attack rate	I11	Well	Attack rate		
Pizza (at Party)	58	1	98.3	13	2	86.7		
Deviled Eggs	44	1	97.7	27	2	93.1		
Shrimp	46	1 3	97.9	25	2	92.5		
Gravy	55	3	94.8	16	0	100		
Chicken	41	3	93.1	30	0	100		
Roast Beef	59	0	100	12	3	80		
Ice Cream	39	2	95.1	32	1	96.9		

not construct the land, also many 2 teldar les rates aust be disqualitied single of y are not derived from a large enough base to be representative.

	Attack Rates by Specific Dietary Item	
constuning Atmusses	for Club Members	
center. The		

leaded bythe bus se	PERS	ONS EAT	ING FOOD ITEM	PERSO	NS NOT E	ATING FOOD ITEM
FOOD	111	Well	Attack rate	111	Well-	Attack rate
Shrimp	11	7	60%	0	3	0%
Chopped Liver	3	0	100	10	8	55
Deviled Eggs	8	3	70	5	5	50
Baked Ham	4	Jasin	80 1990	8 0	8 8	50
Bar-B-Q Ribs	5	0	100	8	8	50
Chicken	5	4	55	8	4	66
Gravy	9	3	75	4	5	44
Roast Beef	10	1	90	10030	7	30
Standing Roast	0	3	a boot o saw s	13	5 738	72
Ice Craam	0	1	0	13	17	65

batton. It was suggested that the roasts be cooled and quickly

Ohio the bour) by using fans and then promptly contingerated and Family Outbreak of Salmonella Gastroenteritis Traced to Ice Cream. Clinton W. Trott, M.D., Commissioner, Knox County Health Department, and Harold A. Decker, M.D., Chief, Division of Communicable Diseases, Ohio State Department Public Health.

Seven members of an Ohio family experienced gastroenteritis due to Salmonella typhimurium. Two were hospitalized. Illness was traced to consumption of ice cream made at the family operated dairy farm.

Symptoms of vomiting, abdominal pain, and diarrhea developed 11-29 hours after eating and persisted 3 to 6 days. S. typhimurium was isolated from the stools of 5 of the 7 family members.

On the day prior to the family's illnesses, all members had eaten lunch and supper together. At both meals all consumed homemade ice cream, which had been prepared on the day of ingestion. Its ingredients included one gallon of raw milk, flour, sugar, and eggs produced on the farm. The custard base for the ice cream was prepared and heated to an unknown temperature below boiling, after which $2\frac{1}{2}$ quarts of the raw milk and an undertermined number of raw eggs were added before the mixture was cooled.

The Ohio Department of Health Laboratory isolated S. typhimurium from the homemade ice cream and from the chicken manure in the coop. No salmonella could be isolated from the eggs which were found lying in the manure. The home grown oats and corn used for chicken feed were cultured and found to contain no salmonella.

Editor's Comment: This report represents an instance in which phage-typing of the S. typhimurium isolates would be of epidemiologic value. Though most would discourage routine phage-typing, this procedure may assist in linking S. typhimurium recoveries from divergent or apparently unrelated sources.

SPECIAL REPORTS

A. Bovine Salmonellosis (S. typhimurium) in a Feedlot Operation.

Abstracted from: W. C. Oglesby, Veterinary Medicine/Small Animal Clinician 59:172-174, Feb. 1964.

During mid-September, the author was called upon to assist in control of an outbreak of a respiratory-enteric syndrome in a feedlot of cattle in North Carolina. The disease, initially diagnosed as "shipping-fever," had begun several weeks earlier with the introduction to the herd of 90 herefords from Alabama. Several animals in this group had clinical signs of a mild diarrhea and respiratory distress on arrival. The owner had administered oral antibiotic therapy without avail, and by the time veterinary tered oral antibiotic therapy without avail, and by the time veterinary consultation was sought, 10 animals had died and 20 were acutely ill.

The feedlot contained about 1,000 head of 600-800 pound cattle obtained from many commercial yards and private owners in southern States. The cattle, when first received, were placed into a central holding pen until a group of 120 was obtained. At this time, they were transferred to one of eight feed pens. The feed pens stood side-by-side, separated by barbed wire and were dry and shadeless. Fresh water was supplied in open tanks wire and were dry and shadeless. Fresh water was supplied in open tanks regulated by floats. The animals received a high fiber ration of hay and regulated by floats. The animals received a high fiber ration of hay and shadeless. Sanitation was poor with several pools of stagnant water being grain. Sanitation was poor with several pools of stagnant pools.

Initially 20 of the most critically ill animals were moved to a shaded hospital pen and were treated with varying combinations of antibiotics and sulfonamides. In addition the entire herd was given sulfonamides and

electrolytes in the drinking water. Correction of the poor sanitation was also undertaken. Despite these efforts, the disease continued to spread through the herd and no improvement was noted in the sick animals. Nitrofurazone in a water-miscible base was then added to the drinking water of the entire herd. In addition, the sick animals were individually treated with a concentrated solution of nitrofurazone via a dose gun. This treatment apparently stopped the spread of the disease through the herd and resulted in marked improvement in the sick animals.

Salmonella typhimurium was isolated from various organs of four or five cattle submitted for necropsy, from the feces of three severely affected animals and from samples of mud taken from the water hole in the central holding pen.

B. Results of Serotyping Salmonellae from Animal Sources in a University Diagnostic Laboratory. Dr. Wilson Henderson, Head, Animal Disease Diagnostic Laboratories, School of Veterinary Medicine and Science, Purdue University, Lafayette, Indiana.

means it is your word added before the mixture was cooled.

Table <u>VIII</u> shows the results of serotyping of salmonellae isolated from domestic animals at a midwest university diagnostic laboratory in 1962 and 1963. Twenty-seven serotypes were isolated, 14 of which appeared in only one of the two years. From among the total isolates, 42.5 per cent were from swine.

The frequency of isolation of the more common serotypes does not differ strikingly from the pattern observed on a nationwide basis.

C. Resume of The Continuing Problem of Hospital-associated Salmonella derby Infections.

An epidemic of <u>S</u>. <u>derby</u> infections began in March 1963 and has continued to the present. It has involved patients or employees of hospitals or chronic-care institutions which are located primarily in the Northeastern United States. <u>S</u>. <u>derby</u> infections are believed to have been acquired initially from an agent introduced in common to each of the involved institutions. Once introduced the organism frequently persisted in both the hospital population and environment. Each of these then likely served as foci for secondary spread of infection. The true extent of this epidemic cannot yet be determined but it has clearly become the largest outbreak of hospital-associated salmonella infections recorded to date.

During the first 11 months of the outbreak (March 1963 - February 1964 inclusive) 2,137 isolations of <u>S. derby</u> from human sources have been reported to the CDC. These are a distinct contrast to the approximately 240 isolations recorded during a similar, non-epidemic period (1962). 840 hospital-associated infections had been identified by September 1963 when reporting of detailed data pertaining to each isolation was discontinued. Investigation of at least 50 per cent of cases reported since that time reveals that the outbreak has remained confined to hospital patients or employees.

Most distressing has been a striking increase in the number of <u>S</u>. <u>derby</u> isolations since December 1963 (See Table VII). Reasons for this increase vary from hospital to hospital, and are not always clear. The following have been invoked to explain the increase in one or more hospitals: (1) a previously unrecognized reservoir of asymptomatic excreters of <u>S</u>. <u>derby</u> have been uncovered as increased numbers of enteric cultures were performed for other reasons (eg. epidemic viral gastroenteritis, research projects), (2) gradual relaxation of control measures has permitted an acceleration in the rate of secondary spread of infection, and (3) the common source vehicle of infections has been reintroduced. More intensive investigations are in progress.

Prompt reporting and more careful study of new S. derby isolations is encouraged.

D. Press Release Concerning Health Hazard of Easter Chicks and Ducklings, reproduced courtesy Dr. John E. McCroan, Chief, Epidemiologist, Georgia Department of Public Health.

The following statement, quoted in its entirety, was released to the press March 19, 1964, under the headline "Easter Chicks and Ducklings Health Hazards." Evidence accumulated in recent years prompted this assertion by the Georgia Department of Public Health.

"Parents buying live chicks and ducklings for their children's Easter baskets may be getting more than a mere Easter 'toy,' according to Dr. John E. McCroan, Chief Epidemiologist of the State Health Department.

'These live Easter pets often carry an infectious bacteria called salmonella which, when spread by the droppings of these pets, may cause salmonellosis, a serious intestinal illness.

"The Health Department advises parents not to buy these pets for preschool children because the spread of salmonella to small children is especially hard to control since they are not aware of the danger of transferring the bacteria to their mouths while playing with the pets.

"If Easter pets are bought for older children, cleanliness and caution in both their playing and eating habits should be stressed. It is also important that the living area of the pet be kept clean and sanitary.

"Symptoms of salmonellosis are abdominal cramping, diarrhea, fever, nausea, and vomiting. The illness persists for three to four days but is seldom fatal. However, complicated cases may require hospitalization and intensive treatment for periods from up to a week or more.

"Simple everyday rules of cleanliness can prevent salmonellosis."

E. Summary of the National Conference on Salmonellosis

rice outbreak (March 1963 - Pebruary 1964

During the past 2 years the increasing interest shown in salmonellosis has been examplified by the response to the Salmonella Surveillance Program on the part of local, state, and federal agencies; industry; and private citizens representing hospitals and universities. Study of the interstate outbreak of <u>Salmonella derby</u> gastroenteritis has highlighted this multidisciplined interest in salmonellosis and has emphasized various areas in which our information about the disease is incomplete.

These various factors led the Communicable Disease Center to sponsor a National Conference on Salmonellosis that was held at the CDC from March 11 through 13, 1964. Because of the size of our auditorium, it was necessary to limit the attendance at this conference to approximately 200 individuals. The final composition of those in attendance included 77 from the Federal Government, 69 from State Governments (including Departments of Health, Agriculture, and Food and Drug Administration), 32 from a variety of industries, 22 from universities, 12 from local Health Departments and Hospitals, 10 from foreign lands and 6 miscellaneous.

The design of the conference was such to bring together a representive group of individuals interested in the problem, to review known data concerning salmonellosis, to point out problem areas and to discuss the principles of practical control procedures. Papers were presented by selected individuals representing all areas of professional training with adequate discussion allowed after each paper. Additional panel discussions were planned on each of the days with questions being asked of an "expert" panel by members of the conference.

The first session was highlighted by a keynote address from Dr. Philip R. Edwards, Chief, Bacteriology Section, Laboratory Branch, CDC, who spoke on "Salmonellosis - An Expanding Problem." There then followed a series of

Parents buying Live chicks and duckilngs for their children's Easter

Evidence cited: (1) SSR No. 2, page 9, (2) SSR No. 9, page 21, (3) SSR No. 14, page 22, (4) Anders, A.S., Bauer, and Nelson, C.B. Salmonellosis due to Salmonella typhimurium with Easter chicks as likely source, J.A.M.A. 158:1153, 1955 and (5) McCroan, J.E., McKinley, T.W., Brim, A., and Ramsey, C.H. Five salmonellosis outbreaks related to poultry. Pub. Health Rep. 78:1073, 1963.

4 papers dealing with surveillance programs for both human and nonhuman salmonellosis in the United States, United Kingdom, and in Canada. The second session on Wednesday afternoon, March 11, discussed the populations at risk beginning with papers dealing with the epidemiology of salmonellosis, and the methodology of identifying outbreaks. There then were specific papers dealing with hospital-associated salmonellosis, state surveillance of salmonellosis, and a discussion of large populations at risk.

On Thursday morning, March 12, sources of salmonella from animal through animal feeds, poultry, eggs, foods, processed foods, and miscellaneous foods were discussed in some depth. The entire afternoon on Thursday, March 12, was devoted to papers and discussion dealing with the interstate outbreak of Salmonella derby gastroenteritis. On Thursday evening, Dr. W. Charles Cockburn of the World Health Organization discussed "Salmonella Retrospect and Prospect."

On Friday morning, the subject centered on the control of the salmonella problem with papers by representatives of the meat industry, the poultry and eggs industry, and the animal feed industry, as well as papers by representatives from the Food and Drug Administration, United States Department of Agriculture, and the Division of Environmental Engineering and Food Protection - PHS. On Friday afternoon there was a post-conference seminar on laboratory methodology for isolation and identification of salmonella.

The various sessions were well-attended and we sincerely regret the fact that all persons interested in attending could not have been invited. However, the precedings of the conference, consisting of the papers and panel discussion sessions will be published. Unfortunately, the monograph will not be available before July 1 because of the accumulation of work at the Government Printing Office during the last quarter of the fiscal year. However, as soon as they are available, copies will be sent out and others may be obtained upon request to the Salmonella Surveillance Unit.

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nteritidis		-	-	1	1	3	5	8	4	5	1	11	29	2		1	4		
		_						-			-		7 1 1 1 1 1	-	- Non-	-	34,00	100	-
ive									2				2				1		_
artford eidelberg	2.0			5		. 1	. 6	2	2	2	2	2	10				12.	7	1
ndiana	onii	10	ina	300	6.	1	6	3	2	3	2 8	2	12	3	1	1	16	1	
nfantis	0 50	13	Va.	10	1	1	12	2 .	2	3		2	9_	5	10	2		dog	2 1
	4 301	1	-	5 91/1	4	100.0000	9119	1117 8	12 Y 1 4	65-277.5	397	14 13	7.5-		19	1		O. 1. 1	1
aviana 9 9 1 3	by	875	qaq	6.8	111	NJ 3	· · · VI	part	mi b	iec.	IBS	LITE	orto	2	1.5	1. 6	111	238	9
entucky	100						13.63	1000		1	1		1				1	530.1	1
itchfield ondon	13.7 34	qs.	8.0	3836	D.	a tul	-,00	13.63	nist	Tunpt	81	70	15.22	Dr - 24	- 13	1 (1)		248	1
adelia	ons	Sme	21	1755	mis	mai	admo	dino.	I mi	30	nol	4.Iu	10	10 6	2.21	6.0	1111	11.	6
			100									C. 12. 13.						- 1	
anhattan	11 1 10 1	1	3115	3	103.	0.80	3	SW :	12002	TAO C	0.15	1	1	1.44	-	1	12 "	TOP	1
eleagridis	5000	1403	100	170	383	MAL	merb i	ben	0(1)	10 10	18	303	10 1	Sec.	1.1 20	1	1000	ods	
iami	57 11			No.				1	1000	3810	3	400	4	- 10.1	241.1				
innesota ontevideo	AL TH		1	2		574			100							2			-
ontevideo	700	10	1	2	41	y Som	3	1	2	2	2	4	11	1			1		-
uenchen -	17	1						1			-	-	-		-				-
newington	na:	d s	Visi	10:	The Day	Un Q	anit	net	is di	ba:	800	2	3	0.85 3.8	1	1.	STILL	3.0	i.
newport	Tan	10	do	Bo.	100	1	. 1	1		1000	16.00			2		1	2	1990	7
ranienburg	1	L		101	(TIE)	13	3	1 2	197	3	do.	39	13	ba3a	113	2	1,52		-
rion ngsagom	EN DI	10	1845	la cla	1318	anu	1	dar.	dua	201	Lis	181	0.163	Se 11	012	1 12	1.0	9.016	Fi.
anama 18 X 100	30	tor	811	E1083-1174		eri e	No. 10.			1 1		9,						111	1.7
panama paratyphi A	120	1	De.	MEN 3	DE :	1111	10.08	1	9G 7	Ayma	2	0.15	3 .	341 2 31	3.675		A. S. Line	A street	
Constructed Division days	Isc	9/	15	0 3	0377	1111	ras ₁	edi	MILE	ub s	037	20	ani i	- 2-y9	117	NUMBER OF	groi	1	J.
paratyphi B	11001116	1	1						-	1000		-	-					19170	67
oona	66	D.C.	on:	18 8	1	17.64	58150	0 4	elds!	SILVE	5.	LE V	the	20 10	008		1,000	200	-
	+ 3	100	901	1531	33.77	11/8	11111	DIVI	2. 01	7 11	-	152.11			100000	-	77 131	2 13	114
reading	1		14						100	1		The same	37.1	Adv.	Ar Sea				1
saint-paul san-diego		100		2	1	1	3	1			1		2		2	1	7	2	
chwarzengrund							-		-	1	to 1		1	1		1			
senftenberg	1	100		1		100	1000	13.3	1 3 3							1			
-	-	-	-		-	-												-	-
stanley	1	1		1			14				1		1						
sundsvall tennessee	1000	100	100	his ha	2 3		901.00			William !								1	28
thompson			1	6	13	1	6		1	3	100	1	5			2	4		
yphi	1			1	2		3	1	1 2	2	11.	1 3	6	2 2	1	1	1		
FARSE TESTS AND T	-	-	-					1	-			3	- 6	2	1	1			-
yphimurium	1	1	1	14	1	5	20	15	24	23	6	20	88	20	3	13	81	3	1
yphimurium v. copen		1		7			7		24	23	1	20	1	20	3	13	3		-
irbana					1				1	1000	1		1						1
veltevreden vorthington	37.45		19.5			1		1	18.44	1	1				1				
or curuk cou			1 16		194	1		March.			The same		2000		1754	1	1		=
Intypable Group A				1000							-								1
Intypable Group B	100	1	1	1	1	2	2	1	1	1		3	1			3	100		
Intypable Group C-1		1	133	1			-	1		1			1			3			
Intypable Group C-2	1	1			1899	1			To State of			1	1						
Intypable Group D		1	15	1	100				1.138						1				H
		1	-	-		-		-										-	1
		1	13		1	13.00	1		1000	17 53	1	15.0	- 4	1	1			4	-
Jnknown	1 116	1 8	1000			1	Charles -				83	Post	- /- X	With the	1 2		41.11		1
Inknown								11											1
Jnknown				N. S. P. S.		Marie Land	100			L'ALL									
inknown	100					0.3	114	, pr	in law		Shi	20	Jan.	tel	100			- 61	
TOTAL	1	1	1			0.1	male.		in kan		1000	8.0	chay	101	1.09			28	-

^{*} Includes January late reports from Delaware, Massachusetts, Mississippi, New Mexico, New York (Beth Israel)

** The Beth-Israel Salmonella Typing Center in New York is a reference laboratory and processes many cultures from other states which are assigned to the respective states although reported by N.Y. - B.I.

TABLE I BY SEROTYPE AND REPORTING CENTER

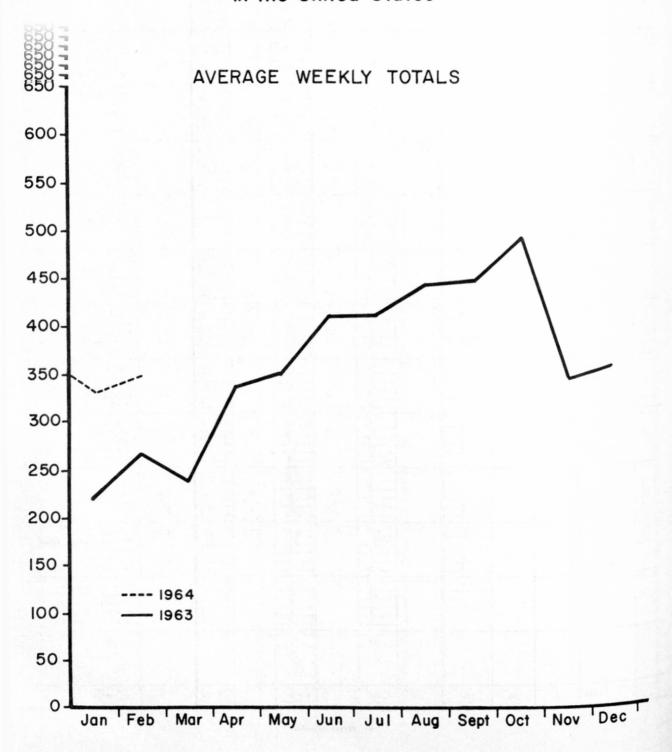
REGION AND REPORTING CENTER SOUTH ATLANTIC WEST NORTH CENTRAL WV NC SC GA FLA TOTAL SEROTYP DC VA IOWA ND SD NEBR KAN TOTAL DEL MD HINN anatum 1 1 bareilly berta binza 1 2 blockley 1 1 braenderup bredeney california 1 chester cholerae-suis cholerae-suis v 1 1 concord cubana 3 19 derby 2 enteritidis 1 2 give 2 hartford heidelberg 1 2 1 3 1 indiana 2 1 1 7 infantis 1 3 1 2 3 3 javiana kentucky 1 litchfield london 2 madelia manhattan 1 1 meleagridis miami 1 minnesota montevideo 11 5 3 3 muenchen 2 2 newington newport 1 2 1 2 oranienburg 1 2 2 2 orion panama 2 2 paratyphi A paratyphi B var 1 1 paratyphi B poona reading saint-paul 1 1 6 san-diego 6 3 schwarzengrund senftenberg 3 4 1 stanley sundsval1 tennessee 1 1 1 7 1 thompson 7 3 typhi 2 1 6 6 1 typhimurium 17 43 5 4 2 5 typhimurium v. 12 35 1 3 6 4 urbana weltevreden worthington Untypable Group Untypable Group Untypable Group 4 1 Untypable Group 1 Untypable Group 2 Unknown 2 1 1 TOTAL -0-24 57 162 12 29 -0-10 26 14 83 16 9 15 7 -0-21 5

	EAS	TSO	UTH							TRAL	1			мо	UNTA	IN			-
SEROTYPE	KY	TENN	ALA	MISS	TOTAL	ARK	LA	OKLA	TEX	TOTAL	MONT	IDA	WYO	COLO	NM	ARI	UTAH	NEV	TOTAL
anatum bareilly berta binza							4		1	5									
blockley braenderup bredeney california chester cholerae-suis			1		1		1		1	1							1	1	1
cholerae-suis v. kun. concord cubana derby enteritidis		3	6	1	9		2			2	1			1			1		1
give nartford neidelberg indiana infantis		1		7	8 1		1 4		2	1 6	1					2	3		1 5
javiana kentucky litchfield london nadelia							2		1	2									
nanhattan neleagridis niami ninnesota notevideo		1			1	1		1	1	2									
nuenchen newington newport oranienburg orion		1 1	1		1 2		2 1 3		4 2 3	6 3 6		1		3		3 1			
panama paratyphi A paratyphi B var. java paratyphi B							2 11		1	3 11 1				2					
reading saint-paul san-diego schwarzengrund senftenberg			1	1	1 1		2		1	2						1			1
stanley sundsvall tennessee thompson typhi	4	1 2	4		1 6	1			1 5	1 6				1	1	1		1	
ryphimurium ryphimurium var. copen. rrbana seltevreden sorthington		5	3	1	9		12	2	11	25	2			7		4	3		14
Intypable Group A Intypable Group B Intypable Group C-1 Intypable Group C-2 Intypable Group D		1			1	2				2					9	1			_10
Inknown																	2		
TOTAL	4	17	13	10	44	4	47	3	38	92	4	1	-0-	14	11	13	10	2	55

			PACIF	IC	NG CE		OTHE	R TOTAL	PERCEN	2 MONTH	% TWO MONTH	1963 TWO	PERCENT OF	
WASH 1	ORE	CAI	-	KA	HAWAII	TOTAL	VI		TOTAL	TOTAL	TOTAL	MONTH	TWO MONTH TOTAL	SEROTY
1			1		3	5 1	1 = 5 1	19	1.3	38	1.2	43	2.0	anatum
			1		-	1		2		6		6		bareilly berta
		1	1		1	8		3 26	1.8	3 49	1.6	38	1.8	binza blockley
1		13	.			1		5		9		7		braenderup
		1.			3	16	1	36	-	65	-	17		bredeney california
			1		-			11	.8	19	.6	57	2.6	chester
-		+-	-	+			-	1		2	2	3		cholerae-suis
								2	4	6		12		cholerae-suis v.
1		11			4	1		6	1	14		5 52		concord cubana
	1	1			4	15 2	1	301 49	20.9	514 116	16.9 3.8	52 70	3.2	derby enteritidis
			1	+	_		-		1	-				
3					3	3		9		13 -		6		give hartford
		6			1	10		69	4.8	183	6.0	169	7.8	heidelberg indiana
	1	7			3	11		74	5.1	151	5.0	116	5.3	infantis
								7		18				javiana
		2			-	2		4 2		5	-	5		kentucky litchfield
								2		2	1			london
+		-	-	-				1		1		-		madelia
					8	8		17		38	-	30 18		manhattan meleagridis
								6		8 3		7		miami
		1				1		29	2.0	68	2.2	68	3.1	minnesota montevideo
		2				2		17	1.2	22		33	1.5	muenchen
					1	1		2		33 11	, . t	5		newington
		6			1	7 4		33	2.3	95 91	3.1	153 54	7.1	newport oranienburg
+								1		1				orion
		1			10	10		18		44	_	15		panama
						1		1 16		36		11		paratyphi A paratyphi B var.
		1			-	1		3 2	.2	14	.5	17	0.8	paratyphi B poona
				+						5		2		
		2			-	2		27	1.9	64	2.1	59	2.7	reading saint-paul
		1 6				6		9		21 15	-	19		san-diego schwarzengrund
-								6		10		5		senftenberg
								1		1		2		stanley
		3				3		30	2.1	60	2.0	19	0.9	sundsvall tennessee
	1	3 5				3 6		18 51	1.2	48 107	1.6 3.5	45 120		thompson typhi
+	2	-		-		-						(0)	-	
	2	27			4	38		392 13	27.2	879 27	28.9	691 21		typhimurium typhimurium var. c
					,	.		1 4		5		6 4		urbana weltevreden
					2	2		4	-	14		7		worthington
		1				1		1		2		1	1	Untypable Group A
	1		,					23	F	38 8		36	1	Intypable Group B Intypable Group C-
			1			2	l l	1	-	2 2		1 8	I	Intypable Group C- Intypable Group D
+	-							1		-				
								10	-	15			t	nknown
	6	112			_		_	1,442		3,043		2,170		TOTAL
		412	1	48	8	180	-0-	1,442	-	-,	-			TOTAL

Figure I.

REPORTED HUMAN ISOLATIONS OF SALMONELLAE in the United States



Note: Average weekly totals rather than monthly totals are presented because some months have 5 instead of 4 weeks.

TABLE II

Number of Salmonella Isolates from Two or More Members of the same Family - February 1964

Reporting Center	Total Number of Isolates Reported	Number of Isolates From Family Outbre	aks
	13	5	
Alabama		0	
niaska	13	2	
ALIZONA	4	0	
Arkansas		24 0.10	
Calliolita	112	5	
COLOLGGO	14	4	
	51	ō	
Delaware		Ö	
District of Columbia	10	14	
Florida	57	2 2 3	
Georgia	24	3	
Hawaii	48	ő	
Idaho	5 7379 1	8	
Illinois	54	7	
Indiana	- avec 5	3	
Iowa	9	2	
Kansas	21		
Kentucky	, , , 4 1	8	
Louisiana		0	
Maine		5	
Maryland			
Massachusetts		31	
Michigan	125	70	
Minnesota	26	3	
Mississippi		0	
Missouri		2	
Montana		2	
Nevada	2	0	
	1	0	
New Hampshire		5 77.3	
New Jersey	11	4	
New Mexico	56	9	
New York-Albany		9	
New York-Beth Israe	il quade III	6	
New York City	71 12	2	
North Carolina	_		
North Dakota		19	
Ohio	60	0	
Oklahoma	escools 3	0	
Oregon	(109/13EI 6	19	
Pennsylvania	100	2	
	risquore 10	4	
South Dakota	a margori 5	0	
Tennessee	17	. 14 human isolation	
Texas	10 and 100 38 ag 10 8	. 4	
Vermont	h salismomils lo am	7	
virginia	27	2	
Washington	13	8	
Wisconsin	28	314	
Total	1,442		

VDA

	n More	Yesterday	requent a	Serotypes	AZ To regal,
	Center	February	Total*	Total**	Comment
	MASS	3 Tagn		6	An infrequent isolation from
		5 0 2		1	man, but recovered rather frequently from mixed poultry feed - meat scraps and fish meal.
	COLO	A 1 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	1	2 S11	Most past isolations from humans. Only nonhuman re- coveries in CDC experience from poultry (1 each from a chicken and a turkey).
		E 2 C C C C	2	24 1 24 2 24 2 24 24 24 24 24 24 24 24 24 24	A long-recognized serotype, rarely seen in U.S. Most previous human isolations have originated in Va. Also recovered from poultry and hogs in Va. in recent years.
		1 8 8 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9	1	1 & (A)	Rare cause human disease. Most commonly observed in horses and other domestic animals. Implicated as cause of death in a foal in 1963.
	6		1	25 E 10 15	Originally isolated from a sailor who developed gastroenteritis while on board ship in Pacific. Named for H.M.S. Orion.
<u>A</u>	CALIF 6		1	11 38 111 8	Though considered host- adapted to man, previous solations reported from sheep, cats, dogs, & water. Occurs rarely in the U.S.
	ARIZ	Ĺ	1	2 S R OA t	dare, but appears concentrated in Southwest. Presiously isolated from atients in Calif., Mexico and Arizona. One recognized exception was a single suman case in Georgia.

^{*}Represents 3,043 human isolations of salmonellae during the first two months of 1964.

^{**}Represents 18,649 human isolations of salmonellae during 1963.

TABLE IV

Age and Sex Distribution of 1,397 Isolations of Salmonellae Reported for February, 1964

				Pos
Age	Male	Female	Total	Per
Under 1	75	44	119	Per Per Per Per Per Per
1-4 Yrs.	99	102	201	Pet Pet Pet
5-9 Yrs.	48	37	85	é
10-19 Yrs.	46	40	86	
20-29 Yrs.	28	44	72	
30-39 Yrs.	16	27	43	3
40-49 Yrs.	26	29	55	4
50-59 Yrs.	26	28	54	444444444444444444444444444444444444444
60-69 Yrs.	38	28.	66	4
70-79 Yrs.	16	21	37	
80-;-	12	2	14	
Unknown	280	285	565	
TOTAL	710	687	1,397	
% of Total	50,	.8 49.2		

TATOT	typhimurium typhimurium var. cop typhi-suis worthington Untypable Group B	senftenberg siegburg stanley tennessee thompson	poona pullorum saint-paul san-diego schwarzengrund	newport ohio oranienburg panama paratyphi B var.java	meleagridis minnesota montevideo muenchen newington	infantis javiana johannesburg kentucky livingstone	enteritidis gallinarum give heidelberg indiana	bredency cerro chester cholerae-suis var.kun derby	alachua anatum binza blockley braenderup	CG BM PD O HT HC HC FM FM FM FM FM FM FM FM FM FM FM FM FM
132	25	4 4	14	11 2	1 2 8	17	23 3 10		H4 4	Chicken
$\overline{}$	-	1 1	16	4	1 2	2	1 1 19 2	213 1	4	Turkey
76 1	6 1	- 1		510						Duck
3	н			17.34.1	N			Marin M		Pigeon
-	н						7-7-5		7.50	Quail
-										Owl
-	н		-1 929	GARLEY.			17-11 37-			Silkie
9	6			1000	12	1				Equine
20	19			н						Bovine
70	1 1		27.32.738	н		1		39 6	21	Porcine
-				1			Diff-			Caprine
13	1 2	(O(LI)	T.S.J.	2	0.8	μμ ^{(†}	9.2 -	1	2 1	Canine
-				La eya ara n		-				Feline
-		LOIVI		3.10		683	3	, 392		Guinea Pig
-							1			Rabbit
2	AT COL	2	93.00	780	P-48-1	782		733	-	Monkey
w					2				1	Tiger
-	The second							754		Puma
-			1			- 0				Tasmanian Devil
1		Y 1 12 Y		2000				-1		Ilama
-	100	7. 1. 5.				0.1		2.7		Alpha Radiata
U	- 1	н		ω				100		Eggs
3	Ph. A	р р		- CH		34		5.5		Egg Yolk
-				-						Egg White
1	10 er	7.4.1		2.6		2.6	н	50-		Powdered Eggs
1				н н						Egg Shell
w	ω	Yra.		20		2.9		55		Donut
1								-		Whipped Cream
1	39	112	-	19		1.2.1		23		Breaded Shrimp
-		н		-						Noodles
-				- 20		44		1.7	-	Cocoanut Cream
٢		-		-						Cake Flour
-				40		40 -		- 86		Bone Meal/Meat Scrap
3	ъ.			-	н					Tankage
2			-	100	-		1	- 88	-	Animal Feed Unknown
-					-	- 52		+ 8¢		Snake
2	н н		P	2.1	-	TOV		VILL		Fomite
2		2	-	60	-		-	301	1	Unknown
370	69	2 2 2 8	114 17 17 5	11719	1 1 2 2 2 2	20 20 20 20 20 20 20 20 20 20 20 20 20 2	27 27 29 29	43	1 4 2 31	TOTAL
TOTAL	typhimurium typhimurim var. c typhi-suis worthington Untypable Group I	senftenberg siegburg stanley tennessee thompson	pullorum saint-paul san-diego schwarzengrund	newport obio oranienburg panama paratyphi B var. java	meleagridis minnesota montevideo muenchen newington	infantis javiana johannesburg kentucky livingstone	enteritidis gallinarum give heidelberg indiana	bredeney cerro chester cholerae-suis var derby	alachua anatum binza blockley braenderup	20 14 15 15 15 15 15 15 15 15 15 15 15 15 15
	в	-44	04.90	Java		100 40	0.000	var.kun	a language	

TABLE VI
NON-HUMAN ISOLATES REPORTED BY THE NATIONAL ANIMAL DISEASE LABORATORY AND STATE REPORTING CENTERS BY SEROTYPE AND STATE FEBRUARY, 1964

	1	1	1			1-			1			11												1-								
EROTYPE	ALA	ALASK	AR	CAL	IF D	EL G	AIL	LIN	DIO	NA KA	N LA	MD	MASS	MICH	MINN	MISS	MO	TNON	NYB	NC O	HIO	DRE P	A SC	TEN	N TEX	CAS	/A W	ASH	W VA	WISC	TOTAL	SEROTYPE
achua atum nza ockley aenderup		1		2	1		100	2 2	1			19		1 2		2 1					1						1				1 31 2 4 1	alachua anatum binza blockley braenderup
edeney rro ester olerae-suis var.kun rby	1	1		ı İtr	TRUES		1 2					37	1	1	1 2 2								3	1						1 1	1 2 4 7 43	bredeney cerro chester cholerae-suis var.kun derby
teritidis llinarum ve sidelberg ddiana			1	Columb	1	1	7	23							1 12 1	1				2	1		1								27 3 3 29 2	enteritidis gallinarum give heidelberg indiana
nfantis dviana ohannesburg entucky ivingstone		1		10	3		1	1	5		1			1		2	1	3 6 1			1		3.30		0		33		333		20 1 1 3 2	infantis javiana johannesburg kentucky livingstone
meleagridis sinnesota montevideo muenchen newington		EA		2	1 1		1	1	1 1	100000	2	1		2			1			1 1	1			4							3 1 12 2 4	meleagridis minnesota montevideo muenchen newington
newport ohio oranienburg panama paratyphi B var.java	2			S SING C	10			2	2		639		3181	4 400		183	1	230	0.00	400	1 3	200	0.0	1	3.3.		3.2%		039		9 1 7 1	newport ohio oranienburg panama paratyphi B var.java
poona pullorum saint-paul san-diego schwarzengrund				78 8	2 4				2		2		-	ī	9 2					4			1			2			hong	6 1	1 14 17 5 4	poona pullorum saint-paul san-diego schwarzengrund
senftenberg siegburg stanley tennessee thompson				1 1	2 1 1		2	2 1 2 1	2		230		103			Jada	2							1					2 (3.8)	1	8 2 2 5 7	senftenberg siegburg stanley tennessee thompson
typhimurium typhimurium var. cop typhi-suis worthington Untypable Group B		1	1	2	10	1	6	1	9	1	paces		1001	1 6	7	231	3	E ITS LIK		4	3	1		1	- year		3.	1	Robert	3	69 1 1 4 2	typhimurium typhimurium var. cop typhi-suis worthington Untypable Group B
TOTAL		4	6	14	46	2	18	15	60	2	2	1 5	8 3	21	37	8	8	1	1	13	12	1	2	11	2	2	4	1	2	13	370	TOTAL

Source: National Animal Disease Laboratory, Ames, Iowa and Weekly Salmonella Surveillance Reports from California, Colorado, Connecticut, Illinois, Kansas, Louisiana, Michigan, Missiasippi, New Jersey, New York, Ohio, Oklahoma, Rhode Island, Texas, Virginia and Washington.

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Salmonella derby Isolations and Total Salmonella Isolations Reported by Month*

TABLE VII

		Total Salmonella Isolations	S. derby Isolations	Per Cent of Total
1962	November	922	18	2.0
	December	794	16	2.0
1963	January	1,111	30	2.7
	February	1,059	22	2.1
	March	931	28	3.0
	April	1,330	61	4.6
	May	1,738	139	8.0
	June	1,640	203	12.4
	July	2,133	303	14.2
	August	1,770	155	8.8
	September	1,786	164	9.2
	October	2,462	228	9.3
	November	1,381	127	9.2
	December	1,439	175	12.2
1964	January	1,601	213	13.3
	February	1,442	301	20.9

^{*} As reported to the Salmonella Surveillance Unit from 50 States and the District of Columbia.



